Complete Summary

GUIDELINE TITLE

Medical management of adults with hypertension.

BIBLIOGRAPHIC SOURCE(S)

Michigan Quality Improvement Consortium. Medical management of adults with hypertension. Southfield (MI): Michigan Quality Improvement Consortium; 2005 Aug. 1 p.

GUIDELINE STATUS

This is the current release of the guideline.

This guideline updates a previous version: Michigan Quality Improvement Consortium. Medical management of adults with essential hypertension. Southfield (MI): Michigan Quality Improvement Consortium; 2003 Aug. 1 p.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Hypertension

GUIDELINE CATEGORY

Evaluation
Management
Treatment

CLINICAL SPECIALTY

Cardiology
Family Practice
Internal Medicine

INTENDED USERS

Advanced Practice Nurses
Health Plans
Physician Assistants
Physicians

GUIDELINE OBJECTIVE(S)

- To achieve significant, measurable improvements in the management of hypertension through the development and implementation of common evidence-based clinical practice guidelines
- To design concise guidelines that are focused on key management components of essential hypertension to improve outcomes

TARGET POPULATION

Adult patients ≥18 years of age who are:

- Not pregnant
- Diagnosed with hypertension
    - Prehypertension (120-139/80-89)
    - Hypertension:
        - Stage 1 (140-159/90-99)
        - Stage 2 (≥160/≥100)

INTERVENTIONS AND PRACTICES CONSIDERED

Evaluation

1. Assessment of lifestyle, cardiovascular risk factors, concomitant disorders, causes of hypertension, target organ damage, and cardiovascular disease
2. Physical examination including 2 or more blood pressure (BP) measurements with appropriate sized cuff and separated by at least 2 minutes, verification in contralateral arm, funduscopic exam, neck exam (bruits), heart and lung exam, abdominal exam for bruits or aortic aneurysm, and extremity pulses
3. Laboratory tests including potassium, creatinine, glucose, calcium, urinalysis, lipid panel, and electrocardiogram (EKG)

Management/Treatment

1. Patient education and nonpharmacologic interventions including lifestyle modifications and self BP monitoring
2. Pharmacologic intervention including
    - Thiazide-type diuretics

- Two-drug combination (thiazide-type diuretic plus angiotensin-converting enzyme inhibitor [ACEI], beta blocker or calcium channel blocker [extended/sustained release or long acting])
- Angiotensin receptor blocker (ARB) if angiotensin converting enzyme inhibitor not tolerated

3. Post therapy BP monitoring and adjustment of therapy

MAJOR OUTCOMES CONSIDERED

Not stated

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The Michigan Quality Improvement Consortium (MQIC) project leader conducts a search of current literature in support of the guideline topic. Computer database searches are used to identify published studies and existing protocols and/or clinical practice guidelines on the selected topic. A database such as MEDLINE and two to three other databases are used.

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Levels of Evidence for the Most Significant Recommendation

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

METHODS USED TO ANALYZE THE EVIDENCE

Review

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Not stated

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

Using the health plan guideline summaries and information obtained from the literature search, the Michigan Quality Improvement Consortium (MQIC) director and/or project leader prepare a draft guideline for review by the MQIC Medical Directors.

The draft guideline and health plan guideline summaries are distributed to the MQIC Medical Directors for review and discussion at their next committee meeting.

The review/revision cycle may be conducted over several meetings before consensus is reached. Each version of the draft guideline is distributed to the MQIC Medical Directors, Measurement, and Implementation committee members for review and comments. All feedback received is distributed to the entire membership.

Once the MQIC Medical Directors achieve consensus on the draft guideline, it is considered approved for external distribution to practitioners with review and comments requested.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Not applicable

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

Once the Michigan Quality Improvement Consortium (MQIC) Medical Directors achieve consensus on the draft guideline, it is considered approved for external distribution to practitioners with review and comments requested.

The MQIC director also forwards the approved guideline draft to presidents of the appropriate state medical specialty societies for their input. All feedback received from external reviews is presented for discussion at the next MQIC Medical Directors Committee meeting. In addition, physicians are invited to attend the committee meeting to present their comments.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

The level of evidence grades (A-D) are provided for the most significant recommendations and are defined at the end of the "Major Recommendations" field.

Initial Assessment

- The objectives of the initial evaluation are to assess lifestyle, cardiovascular risk factors, and concomitant disorders, reveal identifiable causes of hypertension, and check for target organ damage and cardiovascular disease.
- Physical examination: 2 or more blood pressure (BP) measurements with the appropriate sized cuff and separated by at least 2 minutes, verification in contralateral arm, funduscopic exam, neck exam (bruits), heart and lung exam, abdominal exam for bruits or aortic aneurysm, and extremity pulses [A]
- Laboratory tests prior to initiating therapy: potassium, creatinine, glucose, hematocrit, calcium, urinalysis, lipid panel, and electrocardiogram (EKG) [D]

Patient Education and Nonpharmacologic Interventions

- Lifestyle modification: weight reduction (body mass index [BMI] goal <25), reduction of dietary sodium to less than 2.4 g/day, DASH diet [A] (i.e., diet high in fruits and vegetables, reduced saturated and total fat), aerobic physical activity $\geq$30 minutes most days of the week, tobacco avoidance, increased dietary potassium and calcium, moderation of alcohol consumption[1] [A]
- Use of self BP monitoring. Home measurement device should be checked regularly for accuracy. Mean self measured BP >135/85 is generally considered to be hypertensive

[1]Moderate alcohol consumption is defined as up to two drinks per day for men, one drink per day for women and older people.

Goals of Therapy

- Adjust therapy to achieve target BP $\leq$140/90 (<130/80 for patients with diabetes or kidney disease)

Pharmacologic Interventions

- Prehypertension (120-139/80-89): none unless compelling indication (e.g., diabetes, renal failure, congestive heart failure [CHF], post-myocardial infarction [MI], stroke, arteriosclerotic cardiovascular disease)
- Hypertension, Stage 1 (140-159/90-99): thiazide-type diuretics alone or in combination with angiotensin-converting enzyme inhibitor (ACEI), beta blocker, or calcium channel blocker (extended/sustained release or long acting)[2] . Angiotensin receptor blocker (ARB) if ACEI not tolerated

- Hypertension, Stage 2 (≥160/≥100): two-drug combination (thiazide-type diuretic plus ACEI, beta blocker, or calcium channel blocker (extended/sustained release or long acting)[2]; use ARB if ACEI not tolerated
- ACEI (ARB if ACEI not tolerated) are recommended in patients with diabetes or heart failure [A].
- Beta-blockers are recommended in patients with ischemic heart disease or heart failure.
- 3 or more drugs may be necessary for some patients to achieve goal BP.

[2]Avoid use of short-acting nonsustained release calcium channel blockers [A].

Monitoring and Adjustment of Therapy [D]

- Prehypertension without medication: annual BP check with lifestyle modification counseling
- Hypertension, Stage 1: initiate therapy and recheck at monthly intervals until goal is reached.
- Hypertension, Stage 2: initiate therapy and recheck weekly or more often if indicated. Symptomatic Stage 2 may require hospital monitoring and treatment.
- Once BP controlled with medication: recheck every 3 to 6 months.
- Serum potassium and creatinine should be monitored at least 1 to 2 times/year for patients on medication.

Definitions:

Levels of Evidence for the Most Significant Recommendation

A. Randomized controlled trials
B. Controlled trials, no randomization
C. Observational studies
D. Opinion of expert panel

CLINICAL ALGORITHM(S)

None provided

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of evidence is provided for the most significant recommendations (See "Major Recommendations" field).

This guideline is based on the 2003 Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (www.nhlbi.nih.gov).

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Through a collaborative approach to developing and implementing common clinical practice guidelines and performance measures for hypertension, Michigan health plans will achieve consistent delivery of evidence-based services and better health outcomes. This approach also will augment the practice environment for physicians by reducing the administrative burdens imposed by compliance with diverse health plan guidelines and associated requirements.

POTENTIAL HARMS

The use of short-acting nonsustained release calcium channel blockers should be avoided in patients with stage 2 hypertension.

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

This guideline lists core management steps. Individual patient considerations and advances in medical science may supersede or modify these recommendations.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

When consensus is reached on a final version of the guideline, a statewide mailing of the approved guideline is completed. The guideline is distributed to physicians in the following medical specialties:

- Family Practice
- General Practice
- Internal Medicine
- Other Specialists for which the guideline is applicable (e.g., endocrinologists, allergists, pediatricians, cardiologists)

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Living with Illness

IOM DOMAIN

Effectiveness
Patient-centeredness

IDENTIFYING INFORMATION AND AVAILABILITY

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ADAPTATION

This guideline is based on the 2003 Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (www.nhlbi.nih.gov).

DATE RELEASED

2003 Aug (revised 2005 Aug)

GUIDELINE DEVELOPER(S)

Michigan Quality Improvement Consortium

SOURCE(S) OF FUNDING

Michigan Quality Improvement Consortium

GUIDELINE COMMITTEE

Michigan Quality Improvement Consortium Medical Director's Committee

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

Physician representatives from participating Michigan Quality Improvement Consortium health plans, Michigan State Medical Society, Michigan Osteopathic Association, Michigan Association of Health Plans, Michigan Department of Community Health, and Michigan Peer Review Organization

FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

Not stated

GUIDELINE STATUS

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GUIDELINE AVAILABILITY

Electronic copies: Available in Portable Document Format (PDF) from the Michigan Quality Improvement Consortium Web site.

AVAILABILITY OF COMPANION DOCUMENTS

None available

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on April 14, 2004. The information was verified by the guideline developer on July 27, 2004. This NGC summary was updated by ECRI on November 28, 2005. The updated information was verified by the guideline developer on December 19, 2005.

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DISCLAIMER

NGC DISCLAIMER

Readers with questions regarding guideline content are directed to contact the guideline developer.

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